

AMENDMENTS TO THE CLAIMS

Please amend the claims of the present application as set forth below. More specifically, a detailed listing of all claims has been provided. This listing of claims will replace all prior versions and listings of claims in the application. Changes to the claims are shown by strikethrough or double brackets (for deleted matter) and underlining (for added matter).

By way of overview, claims 1, 2, 5-15, and 18-46 are currently pending. The status of all of the claims is indicated below:

- a) Claims 2, 6-13, 15, and 19-46 are original;
- b) Claim 1, 5, 14, and 18 are currently amended; and
- c) Claims 3, 4, 16, and 17 are canceled without prejudice or disclaimer.

Listing of Claims

What is claimed is:

1. (Currently amended) A method for reading information from an optical storage medium, comprising:

providing a cache memory having multiple cache segments;
receiving a request for information stored on the optical storage medium;
determining whether the requested information is stored in one of the cache segments;

retrieving the requested information from said one of the cache segments if the information is determined to be stored in the cache memory; and

retrieving the requested information from the optical storage medium itself if the information is determined not to be stored in the cache memory.

1 wherein the cache memory includes a first group of at least one cache segment
2 dedicated to handling a first type of information, and a second group of at least one cache
3 segment dedicated to handling a second type of information, and

4 wherein the first type of information pertains to information that is designated for
5 retrieval in a streaming transfer mode, and the second type of information pertains to
6 information that is designated for retrieval in a bulk transfer mode.

7
8 2. (Original) The method according to claim 1, wherein the retrieved information
9 pertains to a game application.

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11 3. (Canceled).

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13 4. (Canceled).

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15 5. (Currently amended) The method according to claim [[4]] 1, wherein the first
16 type of information pertains to audio game information, and the second type of
17 information pertains to game level load information.

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19 6. (Original) The method according to claim 1, wherein the determining of
20 whether the requested information is stored in one of the cache segments includes
21 determining whether the requested information is stored in a cache segment identified in
22 hint information received from a host system.

1 7. (Original) The method according to claim 1, when the requested information is
2 retrieved from said one cache segment, the method further comprising:

3 moving a pointer associated with said one cache segment ahead to define free
4 cache space;

5 pre-fetching information from the optical storage medium; and

6 filling the pre-fetched information into the free cache space of said one cache
7 segment.

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9 8. (Original) The method according to claim 7, wherein the pre-fetching is
10 performed at a time in which a drive mechanism is not otherwise engaged performing
11 other tasks.

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13 9. (Original) The method according to claim 7, wherein the filling proceeds in
14 circular manner by wrapping around from an end of said one cache segment to a
15 beginning of said one cache segment.

16
17 10. (Original) The method according to claim 1, when the requested information
18 is retrieved from the optical storage medium, the method further comprising:

19 determining which one of the cache segments should receive the requested
20 information based on an eviction algorithm;

21 flushing the determined cache segment of its current contents; and

22 storing the information retrieved from the optical storage medium in the
23 determined cache segment.

1 11. (Original) The method according to claim 10, wherein the eviction algorithm
2 determines the cache segment to receive the requested information by identifying the
3 cache segment which has been least recently used.

4
5 12. (Original) The method according to claim 10, wherein the eviction algorithm
6 determines the cache segment to receive the requested information by identifying the
7 cache segment which has been least frequently used.

8
9 13. (Original) A computer readable medium including machine readable
10 instructions for implementing each of the receiving, determining, retrieving information
11 from the cache memory, and retrieving information from the optical storage medium of
12 claim 1.

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14 14. (Currently amended) An apparatus for reading information from an optical
15 storage medium, comprising:

16 a cache memory having multiple cache segments;

17 cache management logic, including:

18 logic configured to receive a request for information stored on the optical
19 storage medium;

20 logic configured to determine whether the requested information is stored
21 in one of the cache segments;

22 logic configured to retrieve the requested information from said one of the
23 cache segments if the information is determined to be stored in the cache
24 memory; and
25

1 logic configured to retrieve the requested information from the optical
2 storage medium itself if the information is determined not to be stored in the
3 cache memory,

4 wherein the first type of information pertains to information that is designated for
5 retrieval in a streaming transfer mode, and the second type of information pertains to
6 information that is designated for retrieval in a bulk transfer mode, and

7 wherein the first type of information pertains to audio game information, and the
8 second type of information pertains to game level load information.

9
10 15. (Original) The apparatus according to claim 14, wherein the retrieved
11 information pertains to a game application.

12
13 16. (Canceled).

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15 17. (Canceled).

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17 18. (Currently amended) The apparatus according to claim ~~[[17]]~~ 14, wherein the
18 first type of information pertains to audio game information, and the second type of
19 information pertains to game level load information.

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21 19. (Original) The apparatus according to claim 14, wherein the logic for
22 determining is configured to determine whether the requested information is stored in a
23 cache segment identified in hint information received from a host system.

1 20. (Original) The apparatus according to claim 14, wherein the logic for
2 retrieving the requested information from said one cache segment further comprises:

3 logic configured to move a pointer associated with said one cache segment ahead
4 to define free cache space;

5 logic configured to pre-fetch information from the optical storage medium; and

6 logic configured to store the pre-fetched information in the free cache space of
7 said one cache segment.

8
9 21. (Original) The apparatus according to claim 20, wherein the logic for pre-
10 fetching is configured to operate at a time in which a drive mechanism is not otherwise
11 engaged performing other tasks.

12
13 22. (Original) The apparatus according to claim 20, wherein the logic for filling is
14 configured to fill said one cache segment in a circular manner by wrapping around from
15 an end of said one cache segment to a beginning of said one cache segment.

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17 23. (Original) The apparatus according to claim 14, wherein the logic for
18 retrieving the requested information from the optical storage medium further comprises:

19 logic configured to determine which one of the cache segments should receive the
20 requested information based on an eviction algorithm;

21 logic configured to flush the determined cache segment of its current contents;
22 and

23 logic configured to store the information retrieved from the optical storage
24 medium in the determined cache segment.

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2 24. (Original) The apparatus according to claim 23, wherein the eviction
3 algorithm determines the cache segment to receive the requested information by
4 identifying the cache segment which has been least recently used.

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6 25. (Original) The apparatus according to claim 23, wherein the eviction
7 algorithm determines the cache segment to receive the requested information by
8 identifying the cache segment which has been least frequently used.

9
10 26. (Original) A computer readable medium including machine readable
11 information for implementing the cache memory and each of the logic recited in claim
12 14.

13
14 27. (Original) A method for reading information from a storage medium,
15 comprising:

16 providing a cache memory having multiple cache segments, wherein the cache
17 memory includes a first group of at least one cache segment dedicated to handling a first
18 type of information designated for retrieval in a streaming transfer mode, and a second
19 group of at least one cache segment dedicated to handling a second type of information
20 designated for retrieval in a bulk transfer mode;

21 receiving a request for information stored on the storage medium;

22 determining whether the requested information is stored in one of the groups of
23 cache segments;

1 retrieving the requested information from said one of the groups of cache
2 segments if the information is determined to be stored in the cache memory; and

3 retrieving the requested information from the storage medium itself if the
4 information is determined not to be stored in the cache memory.

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6 28. (Original) The method according to claim 27, wherein the first type of
7 information pertains to audio game information, and the second type of information
8 pertains to game level load information.

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10 29. (Original) The method according to claim 27, wherein the determining
11 whether the requested information is stored in one of the groups of cache segments
12 includes determining whether the requested information is stored in a cache segment
13 identified in hint information received from a host system.

14
15 30. (Original) A computer readable medium including machine readable
16 instructions for implementing each of the receiving, determining, retrieving information
17 from the cache memory, and retrieving information from the storage medium of claim 27.

18
19 31. (Original) A method for reading information from a storage medium,
20 comprising:

21 providing a cache memory;

22 receiving a request for information stored on the storage medium;

23 determining whether the requested information is stored in the cache memory;

1 retrieving the requested information from the cache memory if the information is
2 determined to be stored in the cache memory, including:

3 moving a pointer associated with the cache memory ahead to
4 define free cache space;

5 pre-fetching information from the storage medium; and

6 filling the pre-fetched information in the free cache space of the
7 cache memory; and

8 retrieving the requested information from the storage medium itself if the
9 information is determined not to be stored in the cache memory.

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11 32. (Original) The method according to claim 31, wherein the retrieved
12 information pertains to a game application.

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14 33. (Original) The method according to claim 31, wherein the pre-fetching is
15 performed at a time in which a drive mechanism is not otherwise engaged performing
16 other tasks.

17
18 34. (Original) The method according to claim 31, wherein the filling proceeds in
19 circular manner by wrapping around from an end of the cache memory to a beginning of
20 the cache memory.

21
22 35. (Original) The method according to claim 31, wherein the storage medium is
23 an optical storage medium.

1 36. (Original) A computer readable medium including machine readable
2 instructions for implementing each of the receiving, determining, retrieving information
3 from the cache memory, and retrieving information from the storage medium of claim 31.
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5 37. (Original) An apparatus for reading information from a storage medium,
6 comprising:

7 a cache memory having multiple cache segments, wherein the cache memory
8 includes a first group of at least one cache segment dedicated to handling a first type of
9 information designated for retrieval in a streaming transfer mode, and a second group of
10 at least one cache segment dedicated to handling a second type of information designated
11 for retrieval in a bulk transfer mode;

12 cache management logic, including:

13 logic configured to receive a request for information stored on the
14 storage medium;

15 logic configured to determine whether the requested information is
16 stored in one of the groups of cache segments;

17 logic configured to retrieve the requested information from said
18 one of the groups of cache segments if the information is determined to be
19 stored in the cache memory; and

20 logic configured to retrieve the requested information from the
21 storage medium itself if the information is determined not to be stored in
22 the cache memory.
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1 38. (Original) The apparatus according to claim 37, wherein the first type of
2 information pertains to audio game information, and the second type of information
3 pertains to game level load information.
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5 39. (Original) The apparatus according to claim 37, wherein the logic for
6 determining is configured to determine whether the requested information is stored in a
7 cache segment identified in hint information received from a host system.
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9 40. (Original) A computer readable medium including machine readable
10 information for implementing the cache memory and each of the logic recited in claim
11 37.
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13 41. (Original) An apparatus for reading information from a storage medium,
14 comprising:

15 a cache memory;

16 cache management logic, including:

17 logic configured to receive a request for information stored on the
18 storage medium;

19 logic configured to determine whether the requested information is
20 stored in the cache memory;

21 logic configured to retrieve the requested information from the
22 cache memory if the information is determined to be stored in the cache
23 memory, including:
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1 logic configured to move a pointer associated with the
2 cache memory ahead to define free cache space;

3 logic configured to pre-fetch information from the storage
4 medium; and

5 logic configured to fill the pre-fetched information in the
6 free cache space of the cache memory; and

7 logic configured to retrieve the requested information from the storage medium
8 itself if the information is determined not to be stored in the cache memory.

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10 42. (Original) The apparatus according to claim 41, wherein the retrieved
11 information pertains to a game application.

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13 43. (Original) The apparatus according to claim 41, wherein the logic for pre-
14 fetching is configured to perform its operation at a time in which a drive mechanism is
15 not otherwise engaged performing other tasks.

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17 44. (Original) The apparatus according to claim 41, wherein the logic for filling is
18 configured to proceed in a circular manner by wrapping around from an end of the cache
19 memory to a beginning of the cache memory.

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21 45. (Original) The apparatus according to claim 41, wherein the storage medium
22 is an optical storage medium.

1 46. (Original) A computer readable medium including machine readable
2 information for implementing the cache memory and each of the logic recited in claim
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